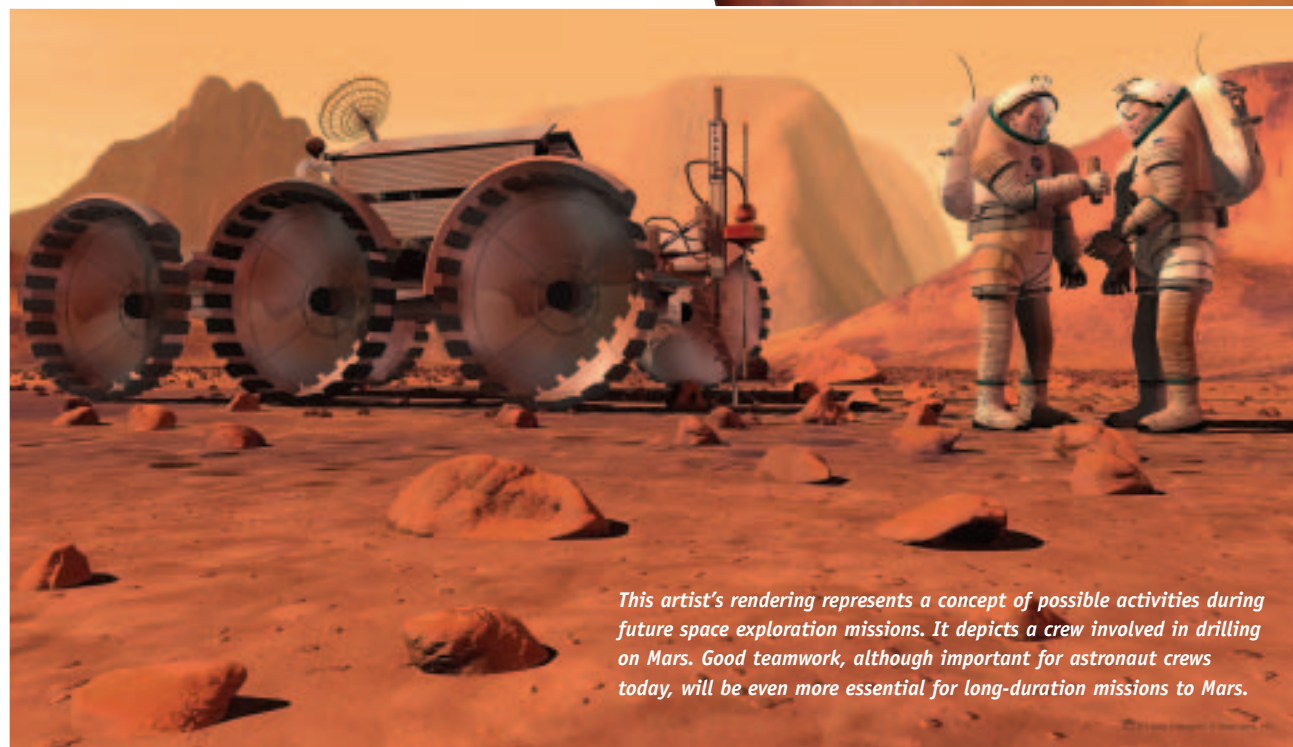


# Mind Games

by Catherine E. Borsché

*Going to Mars? It may not be as much of a blind leap into the unknown if you consider what previous explorers had to do to explore unfamiliar territory. Columbus sailed across the ocean with only his crew, not knowing whether they would fall off the edge of the Earth.*



*This artist's rendering represents a concept of possible activities during future space exploration missions. It depicts a crew involved in drilling on Mars. Good teamwork, although important for astronaut crews today, will be even more essential for long-duration missions to Mars.*

Astronauts today have much more psychological and emotional support when they explore space. Teams at JSC evaluate astronaut candidates, team chemistry, family ties and more to simplify living in space. However, the longer one is away from Earth, the more important the “little things” become. Being crammed in a tiny spaceship with the same crew for months, even years, can create problems that we on Earth can easily avoid.

“Working closely with someone is a big jump from an acquaintance. Living with someone is a big jump from working with them. And living and working together with only two other

people for several months is yet another big jump,” Flight Engineer Dan Bursch said in his Expedition Four 120-day Report. “If you have a bad day, you can’t just go for a walk.”

Psychological support is extremely important in space, especially for long-duration trips. As Dr. Edna Fiedler, liaison for Human Systems Integration/Behavioral Health and Performance at JSC, put it, “I think that the longer you are away from your support system, the harder it is. The Wyle Laboratories folks on the operational side have set up a very good program of communication with the ground and significant others, but that doesn’t mean it won’t be hard.”

From a behavioral science standpoint, the goal is to ease the crew’s transition into the sterile environment of space.

“It’s important to keep them based, because they’re still ‘Earth creatures,’” Walter Sipes, JSC behavioral science psychologist, said.

To help create a “homey” space environment, “there’s a whole buffet of things we send them: e-books, photos of the family, care packages that the family can put goodies in and decorations for holidays,” Sipes said. “It’s all about maintaining life as normal as possible, especially for a long trip.”

In addition to home comforts, keeping in contact with family is vital. The International Space Station is set up so that the crew has e-mail access and an IP (Internet protocol) phone, or Internet phone. The IP phone allows the crewmember to call any phone number on Earth, as long as the Space Station is in range of certain antennas. There is also a weekly private family conference, which enables the crewmember to stay connected with loved ones. Keeping in touch is also important for the families of the crew.

“If we keep the family happy, then the crewmember is happy,” Sipes said. Issues at home don’t stop just because an astronaut is in space. So, the less complicated family matters are for an astronaut, the better. “That’s one less thing that the crewmember has to worry about when they’re in space.”

For future long-duration missions, NASA will work to continue such programs.

Psychological issues are taken into consideration long before missions even begin. During astronaut selection, the finalists visit JSC to complete psychological and medical evaluations. The psychological evaluation lasts four hours and is conducted in an interview format.

“We look at how suitable they would be. Will this person do well as an astronaut for long-duration or short-duration missions? What kind of experience do they have? Have they worked with other cultures – been in leadership or followship roles? What are their experiences to threats of danger? Those kinds of questions get asked,” Sipes said.

Sipes noted that, unlike the original seven astronauts, they no longer challenge astronaut candidates to decipher ink blots. Testing is much more straightforward and used to determine whether there is a history of mental illness or depression.

For missions, the central theme to the happiness of a crew is simply: teamwork.

“You need competent people to work the equipment. From a psychological point of view, you can have competent people, but they also have to work well as a team,” Sipes said.

Successful team relationships are nothing new to NASA.

“It’s definitely going to take a special person that can handle living with just a few other people for a long period of time,” Fiedler said. “People have successfully done this in the Arctic and Antarctica. The whole history of exploration shows that it can be done, but it’s just tough.”

Stress between coworkers still exists in space. The only difference is that while Earthlings can take a deep breath and



*Cosmonaut Yuri I. Onufrienko, Expedition Four mission commander, flanked by Astronauts Daniel W. Bursch (left) and Carl E. Walz, both flight engineers, pose for an informal crew photo in the Zvezda Service Module on the International Space Station.*

walk away from a problem, astronauts are stuck where they are. The lack of square footage forces crews to work out their differences and nuances at the first sign of tension.

“I have come to accept that all of us will have (and have had) good days and bad days,” Bursch said. “Frank Culbertson told us some good advice. Some days you just need ‘to let go.’”

Fiedler, who facilitates research for the National Space Biomedical Research Institute, says there are four areas that their research is concentrating on for future missions: team cohesion and productivity, behavioral health management, performance readiness and selection.

But while going to Mars does pose unique challenges, the challenges are not anything that astronauts can’t tackle. As Bursch said philosophically, “The balancing act of life is the same in space as it is on Earth!”



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JSC Security Special Operations Group from left to right, front row, Bran Faircloth, Michael Johnson, Mauricio Reyes, Jacob Manuel, back row, Alex Duran and Russ Tucker. Not pictured are Chief Ric Hewitt and Matthew Gillilan

by Johannes Ragin

# Inside JSC SWAT

September 11 has made many agencies rethink their whole approach to safety and the security of their property and personnel. The terrorist attacks on the U.S. reminded our nation that we are vulnerable – as part of a plan to tighten its security, JSC formed and implemented the Special Weapons and Tactics (SWAT) team.

In January, 2003 the JSC SWAT team became operational. “Our SWAT team was created to provide JSC with a tactical response team that could respond to a variety of issues that could arise at the Center,” Richard Hewitt, JSC chief of security, said. The idea was to have a highly disciplined team available 24/7 with the ability to respond to a crisis that JSC security was not normally equipped or trained to handle.

The nation’s first-ever SWAT team was created in Delano, Calif., in the 1960s. Delano’s SWAT team was formed in response to an uprising by the United Farm Workers that year. Despite the rural origin, SWAT is generally limited to large urban cities, and today almost every major police force in the country has its own SWAT team.

The JSC SWAT team is made up of seven members with one backup. Applicants for JSC SWAT team positions must meet stringent requirements to even be considered for a place on the team. All members of the team have military and/or law enforcement background and have completed SWAT school.

In addition, SWAT team members have to maintain weapons proficiency and acquire and maintain the high level of physical fitness essential for the job. “There’s a lot of personality we look for also; you have to be able to play well with others and have the mindset to use a weapon appropriately and work at a team concept,” Hewitt said.

JSC SWAT is unique when compared to other tactical groups. They are security officers first, but they are also trained as SWAT officers. That gives JSC SWAT formal arrest authority under Title 18 and the Space Act, a capability no other security force in the state of Texas has. JSC SWAT also works very closely with the Combined Area Response Team (CART) and the Houston Police Department (HPD) SWAT.

The CART team is made up of several communities outside Houston jurisdiction that have come together to form their own SWAT team. JSC SWAT trains with CART and HPD SWAT teams. This is crucial considering that JSC may call upon these teams for assistance in the event that a serious crisis occurs. “We all have to be on the same path of knowledge and understand how each other operates so that, if someone comes in behind you, there’s no surprise,” Hewitt said.

Many responsibilities come with being a member of JSC SWAT. Not only is the JSC SWAT team responsible for the safety of NASA property and personnel, but its members are also continuously training. “Generally, we train no less than once a week. When we’re not engaged in training, we work on various

types of investigations and perform other security duties such as traffic and building surveys and adjudicating traffic tickets the rest of the time,” Michael Johnson, captain and special operations unit supervisor, said.

Training includes anything from examining suspicious packages, to building surveillance, to breaches of perimeter and astronaut protection. “We have to be able to respond to every facility, know every facility, and know how to go in and out of every facility. We train for a variety of different scenarios,” Hewitt said.

When the SWAT team is involved in a security situation, they need compliance from everyone involved for them to do their jobs. “One thing we have continually encountered is that, when people see us in our tactical gear, we’re not always taken seriously. Once we’re in a tactical situation, we are focused on the mission at hand as well as to perform our job as safely as possible; the peripheral distractions of people in the area who attempt to interactive with the team may create a hazardous situation for all parties concerned,” Hewitt said.

The mission statement of the SWAT team is: “To enhance the quality of security to the Johnson Space Center employees and visitors by providing a professional, effective and timely response in order to enhance community safety, protect life and property.”

## Specialized SWAT Training

- 60 hours of SWAT school
- Dynamic building/office entry
- Vehicle extraction
- Nonlethal weapons
- CS (0-chlorobenzalmalononitrile) gas
- Tactical shooting
- VIP protection
- Response to duress alarms